

## **Upcycling RAS Binder into Chemically Rejuvenated Asphalt Products with Superior Properties Using Renewable Chemistry—An AIF Sponsored Study**



**Jeramie J. Adams, Ph.D.**

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As an avid researcher, Jeramie enjoys chemical synthesis, catalysis, supramolecular chemistry, photochemistry, carbon materials, advanced chemical characterization, green chemistry, sustainable materials, and modeling.

During his tenure at WRI, he has helped foster and lead multiple industry-focused collaborations such as the Asphalt Industry Research Consortium, the Heavy Oil Research Consortium, Processing Improvement of Problematic Crudes Consortium, and the Consortium for Production of Affordable Carbon Fibers in the United States (DOE Contract #: EE0008203). From this last work, he has continued with multiple international companies to develop high-quality mesophase pitch from their feedstocks to produce advanced carbon materials.

Regarding more traditional asphalt research, Jeramie has extensive knowledge in oxidative aging, additives, and relating chemistry and refinery processing to asphalt performance. For more cutting-edge advancements, he has led efforts to develop novel bio-based asphalt binders and additives from various waste and bio-based feedstocks using renewable chemistry. He is also passionate about finding value-added solutions for upcycling epoxy resins from waste composites, such as those from end-of-life wind turbine blades, into asphalt products. In the last several years he has led multiple projects to upcycle RAS into new high-quality asphalt products using renewable chemistry. These cutting-edge innovations and technologies were the genesis for the WRI Waste Re-engineering Initiative launched in 2022 to help the asphalt, manufacturing, and agricultural industries develop circular economy solutions.